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Topic: Draft Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada (DOE/EIS-0250D, July 1999.

Dear Ms. Dixon:

The following comments address inaccuracies, errors and likely deceptions I ran across upon reviewing the above referenced document. Though many of these comments do not directly address the mountain's containment characteristics, or the issues involving transporting the waste, they do call into question the report's fulfillment of the spirit and letter of the provisions of the National Environmental Policy Act (NEPA).

Map Errors

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The three documents contain several scores of maps which appear in the Figures. Forty-one of the maps include boundary lines which supposedly enclose the U.S. Department of Energy's Nevada Test Site (NTS) which is both adjacent to and a part of the Yucca Mountain study site. As of the release date of the draft EIS the displayed boundary lines in all 41 maps were in error according to the public land use and administration records that are maintained by the U.S. Department of Interior's Bureau of Land Management (DOI/BLM) which serves as the official keeper of this country's public land use records. The boundary discrepancies were far from trivial since they involved a total of approximately 144,640 acres (~58,536 hectares; ~87.26 sq. km.), or 3.7 times the area occupied by Washington, D.C. A listing of the faulty Figures appears at the bottom of the reference citations.

Long after the DEIS was issued, on October 5, 1999, Public Law No: 106-65 was signed by President Clinton. (1) Not until then did the boundaries, depicted in the 41 maps in the draft EIS, resemble those described in Pub.L. 106-65. The following comments address the draft EIS accuracy at the time of its issuance.

The public lands which make up the NTS are withdrawn from general public use under provisions contained in four Public Land Order notices that are contained in the National Archive's Federal Register. (2) These lands remain withdrawn for nuclear explosive

1... testing purposes despite the fact that the nuclear testing program was terminated almost seven years ago.

The NTS area depiction, in the Yucca Mountain Draft EIS, should have excluded the approximately 106,240 acre area that is commonly referred to as "Pahute Mesa." This is the baseball cap shaped area adjacent to the northwest corner of the legally defined NTS boundary. An approximately 38,400 acre rectangular block of land that includes the northeast corner of the NTS should have appeared in the Draft EIS documents. If any of the boundary exclusions or falsification was justified for purposes of protecting the national security, that fact should have been clearly stated in the EIS. The general public, and the public's elected representatives, should have be informed of such actions, along with the statutory basis behind the decision to falsify the map boundary depictions.

On 6 November 1986 the Military Lands Withdrawal Act of 1986 was enacted. Associated with that Congressional act was a map and supporting legal boundary descriptions. (3) The map and legal description indicated that the "Pahute Mesa" area was assigned to the Air Force and not to the DOE for conducting nuclear explosion tests. The map indicated that the lands, described in PLO 1662, remained assigned to the U.S. DOE as part of the NTS. The recently issued Final Legislative Environmental Impact Statement reaffirmed the fact that Pahute Mesa remains assigned to the Air Force as an integral part of the NAFR and PLO 1662 lands remain assigned to the DOE's NTS. (4)

The DOE should have no excuse for not depicting the NTS boundaries correctly since the correct map appears in the DOE's own Final EIS document that recently analyzed the NTS. (5) These last two references were cited in the Yucca Mountain Draft EIS Reference section. For well over three years I have been submitting formal comments to the DOE, urging them to render the NTS maps correctly. (6) It has become obvious that the DOE has no intention of following the existing laws in this regard. According to the DOI/BLM public records the Pahute Mesa and PLO 1662 lands have been illegally used for over 35 years by the DOE and the Air Force. (7) The congressional act, that enacted the MLWA of 1986, superseded any agreements the DOE may have had with the Air Force in regards to the use of Pahute Mesa.

For decades the DOI/BLM has issued maps that depict the NTS according to its public land use records. (8) For decades the Nevada State Department of Transportation has distributed tens of thousands of complementary official highway maps which also depict the NTS properly. (9) Despite the issuance of all these official maps the DOE continues to act on its own by filling tons of its official reports with bogus depictions of the NTS.

Under pressure from State Regulatory officials, the DOE and the Air Force have formulated the recently issued plan for the renewal of the Nellis Air Force Range (NAFR) so that land administration changes will occur upon the passage of a Congressional Act. (Ref. 4, see Alternatives 1B and 2B maps) These changes will likely make moot the last 35 years of illegal land use by shifting

1... the land administration so it conforms with DOE's depiction and use of the NTS. The congressional legislation is crafted by the Air Force in such a way that the vast majority of the voting members of Congress will have no idea that their actions will shift the administration for large segments of withdrawn public lands between powerful and secretive executive agencies.

The DOE is supporting this plan since it will get it out of some potentially very hot water. The maps in the Yucca Mountain Draft EIS should have conformed with the existing public records maintained by DOI/BLM and should not have been based upon congressional legislation which is still pending.

2... The relevance of the positions I have taken above may be seen in the Yucca Mountain Draft EIS Section 8 that covers Cumulative Impacts. In reference to the Nellis range renewal Legislative EIS a statement appears at the top of page 8-10. This statement includes "[t]he Air Force is proposing no substantial new activities in the future ..." I suggest that the change of hands for approximately 144,640 acres, that the Air Force has proposed in the LEIS, is potentially substantial and this issue should be fully covered in the Yucca Mountain Final EIS.

Adjacent Nuclear Testing Effects Poorly Understood and Poorly Reported

In the last paragraph of Section 8.3.2.1 (Page 8-74) was the suggestion that the cumulative effects from surface radioactive contamination at the NTS was unimportant due to a less-than-40-curie source term. This needs some closer examination, especially in the light that much of the contamination debris resulting from nuclear explosives testing is still shrouded in secrecy, ostensibly to prevent the proliferation of nuclear weapons.

First, its helpful to understand that each nuclear explosive is essentially a miniature nuclear reactor that is designed to "burn" a portion of its nuclear fuel in less than one microsecond, rather than in the two to three year time period common to nuclear power reactors. As with nuclear power reactors, the "burn" or fission process results in the production of spent fuel debris containing fission products such as cesium-137 and strontium-90 along with substantial quantities of unfissioned fuel debris. One significant difference in the composition of most nuclear explosion debris is that it almost always contains between one to three kilograms of plutonium-239. The spent nuclear fuel that may end up at Yucca Mountain would contain plutonium-239 concentrations of only around 1/2 %. The spent fuel that may be brought to Yucca Mountain is subject to strict engineered containment standards. The spent nuclear fuel that was generated by approximately 1,021 nuclear detonations at the NTS was not subject to anything like the power reactor and Yucca Mountain containment standards. It was blasted into the environment, be that the atmosphere or the underground environment. Effectively, the NTS was the location of over one-thousand nuclear reactor explosions. At the NTS 100 nuclear test explosions were conducted in the atmosphere. (10) Underground, 921 detonations were

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conducted. (11) One estimate is that approximately 260 of those detonations were conducted below the local water table or within 100 meters above it. (12) Since the vast majority of these explosions had high-energy-yields, much of the radioactive debris generated and released by the above groundwater explosions, ended up below or just above the existing water table. Unlike the Yucca Mountain site, no research has gone into looking at the possible rise of groundwater in the underground nuclear testing areas of the NTS. The blown-up nuclear reactors in these areas will not be analyzed to see how many thousands of years it will take before their containers have corroded through. The radioactive debris has already been scattered. Most of it is contained in a highly heterogeneous glassy matrix, a material is quite different from the laboratory grade borosilicate glass that High-Level nuclear waste is required to be encased in.

The nuclear explosives that were detonated in the atmosphere were not significantly different from those detonated underground and one result is that the radioactive debris released by each of those explosions was similar. Notice on page 8-75 that the radionuclide release estimate for the 921 detonations conducted underground is 300 million curies. The estimated source term amount left on the surface by 100 atmospheric tests, a couple of dozen shallow underground tests, plutonium dispersal tests ("safety tests"), and rocket & jet tests, was less-than-40-curies. It is worth asking the question; if approximately 15% of the tests were conducted in the atmosphere, then why isn't the surface source term closer to 45 million curies rather than 40 curies? What happened to approximately 45 million curies of radioactive debris? I believe a part of the answer lies in inaccurate surface radiation surveys and a failure to look for, or detect, plutonium that now lies slightly below the surface. Still, a goodly portion of the nuclear explosion debris drifted down-wind to fall out all over our nation. (13) This section of the Yucca Mountain Draft EIS mentions the lack of contamination data associated with the underground nuclear test areas. I believe that part of the dearth of information is due to the fact that much information on the vast majority of the underground nuclear tests still remains classified. In addition, the DOE has limited access to the sources of the contamination so little external analysis of this subject can be performed. NEPA analysis of the Yucca Mountain potential repository situation should not be hindered by information restrictions associated with adjacent past and on-going DOE nuclear weapons programs. Each and every time an analysis is hindered by such programs the public and the public's elected representatives should be dully informed via open media presentations. The public has a right to know when governmental agencies are withholding information from them. The recently reported incidents at the uranium enrichment plant at Paducah, Kentucky are not unusual. The AEC and DOE have a lengthy record of putting production missions ahead of local health and safety. Deceiving workers and local residents with vague and deceptive terms has become second-nature to generation after generation of DOE functionaries. The draft EIS failed to mention that the DOE continues to explosively disperse small quantities of plutonium-239 in underground rooms at the NTS as part of its subcritical test program. Nor did it mention that the DOE has no

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...2 firm plan in place to remediate that contamination upon the conclusion of the test series.

The Cumulative Impacts section should have also mentioned that the nuclear debris produced and dispersed by underground nuclear explosions is not covered by the U.S. Environmental Protection Agency's regulations that are associated with Spent Nuclear Fuel, High-Level and Transuranic Radioactive Waste. (14) The Code of Federal Regulations, Title 40, Section 191.3, involving containment requirements, does not apply to this form of spent nuclear fuel. In addition, the Section 191.14 containment assurance requirements does not apply. This includes the strict requirements to mark the debris sites and prevent human intrusion.

Draft EIS, Section 8, on the cumulative impacts, largely treated the nuclear explosion tests impacts as something that happened in the past. It failed to mention that since the remaining debris contains large quantities of plutonium-239 the hazard from the dispersed debris will continue for a longer period than for the power reactor spent fuel material that is proposed for burial at Yucca Mountain. This section barely mentioned the fact that the NTS is being kept ready so that the underground nuclear explosive testing program can be resumed in the event that such a need is deemed necessary. This is an issue which was given only very minor coverage in the 1996 NTS EIS. It is an issue that certainly should have been covered in some detail in the Yucca Mountain Draft EIS. Surely, this issue deserves substantial coverage in the Final EIS for the proposed Yucca Mountain repository.

In 1987, the President's Council on Environmental Quality (CEQ) issued a guidance handbook that described how to analyze cumulative impacts and prepare the necessary NEPA reports on this issue. (15) This guidance should have been used in the preparation of the Yucca Mountain Draft EIS. NEPA cumulative impact review guidance was recently issued by the U.S. Environmental Protection Agency (EPA). (16) Both these document should have been utilized in reviewing the adequacy of the Cumulative Impacts section of the Yucca Mountain Draft EIS.

3... Promotional Map

On page 8-11 is Figure 8-3. Potential locations of proposed cumulative activity associated with VentureStar® at the Nevada Test Site. This map is a reference to private corporation plans for use of portions of the NTS. The VentureStar® space launch facility plans involve the Nevada Test Site Development Corporation, Kistler Aerospace Corporation and Lockheed Martin Corporation. Numerous references to Figure 8-3 appear on page 8-74. Here a listing of seven categories of activities appear that have resulted in radioactive contamination or have the potential to result in radioactive and nonradioactive contamination. Item number 2. Underground Nuclear Testing., indicates that approximately 800 underground nuclear test locations appear in Figure 8-3. Not a single site appears on that Figure. Item number 6. Crater Disposal., indicates that the location of the Area 3 Radioactive Waste Management Site appears in Figure 8-3. It does not. Item number 7. Greater Confinement

...3 Disposal., indicates that the location of the Area 5 Radioactive Waste Management Site appears in Figure 8-3. It does not.

Each of the seven items should be shown on properly rendered maps of the Nevada Test Site that are of identical scale. In addition numerous other existing and proposed contaminating activities should be added to the list and shown on maps. This includes the Spill Test Facility which regularly releases massive quantities of toxic chemicals into the environment of Frenchman Flat and into the U.S. Fish and Wild Life Service, Desert National Wildlife Range. The experimental facilities at the U1a "LYNER Complex" site, that host the subcritical test program should be included. The Big Explosives Experimental Facility (BEEF) needs to be listed and shown as well since it is expected to be a source of heavy metal toxins, beryllium and radioactive material releases. The Yucca Mountain Draft EIS should also have included proposed experimental facilities such as the "Fire Experiment Facility" that may be located at Frenchman Flat. (17) According to a reference (Nakos, 1998) in the Environmental Assessment report, planning for this project began over seven months before the release of the Draft EIS.

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Include Conceptual Plans

Conceptual plans for the remediation of the underground test areas should have been included in the Cumulative Impacts section. (18) For example one remedial cost estimate was put at $ 7.29 trillion dollars and would involve the largest open-pit mining operation in the world. Certainly this would represent more than a insignificant cumulative impact. The plan included a conceptual proposal to pipe massive quantities of ground water through the proposed Yucca Mountain repository area. That certainly should have been in the Draft EIS and should be explained, in detail, in the Final Yucca Mountain EIS.

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Increase Conceptual Impact Scope

In the Final EIS, the maps showing the surface contamination and the 921 underground detonation sites should display "Pahute Mesa" as described in the public records of the BLM. If it remains recorded as an integral part of the U.S. Air Force's Nellis Air Force Range (NAFR), it should be shown as such. That means that approximately 70 of the pockets of nuclear explosion debris could still exist outside the legal boundaries of the NTS despite DOE's frequent insistence that they have not detected underground contamination beyond the NTS boundaries. A series of maps that displays the locations of the underground detonation sites should also display predictions of the plume extent for various radionuclides for 50, 100, 1,000, 10,000 and 100,000 years from the year 2,000. The Final EIS should include a similar set of maps that covers the potential migration of radionuclides away from buried waste canisters in Yucca Mountain. Predicted plume extent maps for the NTS are likely available since DOE contractors have spent several years developing the computer models. (19) The general areas that may be impacted by underground nuclear detonations should be rendered on NTS maps that consist of the legal boundaries. These potentially contaminated areas are shown

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...5 in the 1996 NTS EIS on Page 4-82, Figure 4-22. Location of underground testing areas and number of tests on the NTS. The diagram of the typical test sequence and cross-section, provided in Figure 4-23, should also be provided in the Yucca Mountain Final EIS. The location of the plutonium dispersal experiments is displayed in Figure 4-29 on page 4-97. The approximate areas where surface plutonium contamination exceeds 10pCi/g is displayed in figure 4-30 on page 4-98. (5) These contamination plots should be provided in the Yucca Mountain Final EIS.
Note: Plutonium-239 contamination levels of greater than 2.5 pCi/g can, in some situations, be considered as requiring clean-up actions by the EPA.

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Final Waste Management PEIS Applicability?

In several sections of the Draft EIS, reference was made to the Final Waste Management PEIS (DOE 1997b). (20) The adequacy of portions of a source DOE NEPA report was challenged in federal court and one result is that this Final PEIS now lacks site restoration components. (21) An employee of a DOE contractor that was reviewing data for the PEIS claimed that quality was lacking. The results of those charges can be seen on the GAP web site. (22) Generally, this PEIS has had a lengthy and troubled history which leads to question of its adequacy.

DOE Control Over Technical Review Process

7... Appendix Section 13.2, pages 13-7 and 13-8, provided a listing of reviewers. Only organizations and general offices were provided. The Final EIS should provide a listing of the personal names and work addresses of the reviewers. In looking over the list of preparers I noticed virtually all of them would likely have a strong vested interest in seeing that the proposed repository at Yucca Mountain is approved and put into operation. This represents a major conflict of interest in the preparation of the Draft EIS. The preparation and review of the Final EIS should involve a selection of individuals who clearly have no stake in
8 the outcome of the EIS review process. Although the Yucca Mountain study project is strongly dependent upon geological factors, the highly respected U.S. Geological Survey (USGS) was not utilized to play a significant role in the repository analysis despite the fact that this federal agency had played major roles in past repository studies. The Final Yucca Mountain EIS should rely heavily upon USGS expertise and it should be thoroughly reviewed by the USGS and independent scientist in the academic
...7 community before it is released to the public. A panel of independent experts should be established to determine the individuals who should perform future reviews of the EIS. A major selection criteria should be that these individuals should have no vested interest in the outcome of the repository analysis.

Conclusion

Though the above comments address only a tiny fraction of the Draft EIS they may suggest that many other sections of the report may need similar scrutiny. Perhaps my comments will serve as a guide for those who wish to look into other aspects of this very

important environmental report. The best results will be obtained only when the full scope of these issues are exposed and subjected to the scrutiny of a broad spectrum of members of the public. These are issues that deserve the attention of not just those people who live in the path of the nuclear waste, but also those folks who believe in the desirability and strength of participatory democracy.

Sincerely,

Vernon Brechin

Vernon Brechin

CC: Robert R. Loux - Executive Director, NWPO
Paul Liebendorfer - Bureau Chief, NDEP/BFF

References

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9. "Nevada: 1999 Official Highway Map," Map Section, Room 206, Nevada Department of Transportation, Carson City, Nevada 89712, 1999.

10. "United States Nuclear Tests: July 1945 through September 1992" (DOE/NV-209 (Rev.14)), December 1994, U.S. Department of Energy, Nevada Operations Office, North Las Vegas, Nevada. (Page viii)

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19. "Nevada Test Site Resource Management Plan" DOE/NV--518, December 1998, U.S. Department of Energy, Nevada Operations Office, Las Vegas, Nevada. (See: Section 11.4.1.5 Regional Groundwater Data Sets for Groundwater Modeling, and Section 11.4.1.6 Predicted Plume Extent Maps, both on page 1-8)

20. "Final Waste Management Programmatic Environmental Impact Statement for Managing Treatment, Storage, and Disposal of Radioactive and Hazaardous Waste" DOE/EIS-0200-F, Office of Environmental Management, Washington, D.C. [232988]

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Yucca Mtn. Draft EIS NTS Map Listings
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